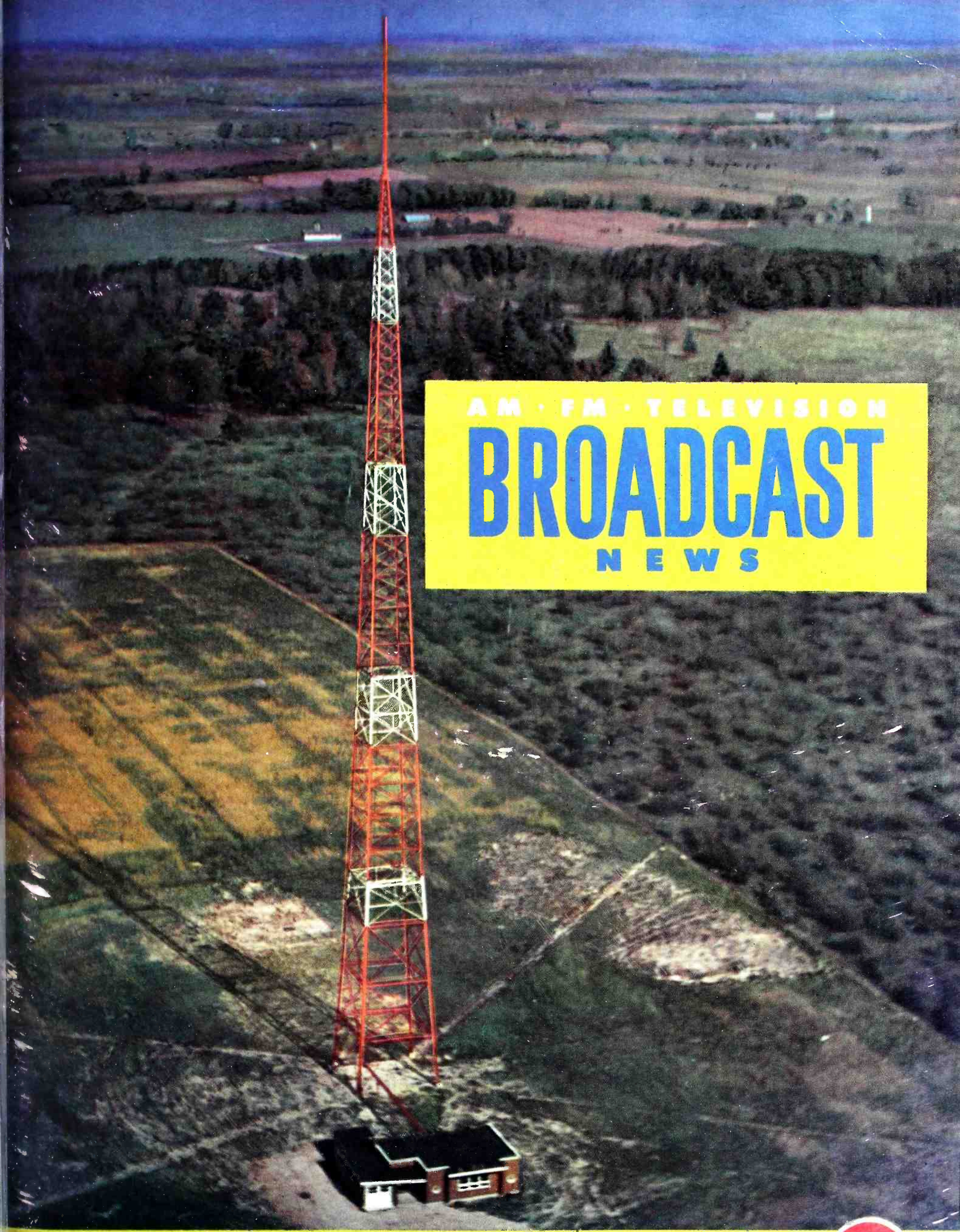
AM · FM · TELEVISION

BROADCAST NEWS



WJPG's FM INSTALLATION... SEE PAGE 8

RCA

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Broadcast News

AM · FM · TELEVISION

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Published by the

RADIO CORPORATION OF AMERICA

ENGINEERING PRODUCTS DEPARTMENT . . . CAMDEN, NEW JERSEY

NUMBER 49 MAY, 1948

Subscription Rate $2.00 per year. Single copy 50c.

JOHN P. TAYLOR, Editor JUDY J. ALESI, Ass't Editor

W. O. HADLOCK, M. L. GASKILL, Associate Editors

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OUR COVER for this issue is reproduced from a Kodachrome transparency forwarded to us by Elmo W. Reed, Chief Engineer of WJPG, Green Bay, Wisconsin. Visible in this picture are the brick building housing WJPG-FM's 3 KW transmitter, the 325-foot tower, and the 4-section Pylon Antenna atop the tower. Mr. Reed sent a photographer up in a plane twice, and took more than a dozen pictures all told, before he obtained just the right one for this interesting cover. He also sent us the story and photographs of WJPG-FM which appear in this issue (Pg. 8). Our thanks, Mr. Reed, and congratulations on a very good-looking installation.

WSBA-FM story, a sequel to that in our December issue—describes conversion of WSBA-FM for 10 KW operation. WSBA-FM is one of the cleanest and best-engineered installations we've seen—and it's the first installation of our BTF-10B Transmitter, of which we are also quite proud. In order to find out how it really feels to convert from 3 to 10 in the field, Bill Tucker and Frank Talmage of our transmitter section helped Woody Eberhart of WSBA make the changeover. Their description of the new setup will be found in the story starting on Pg. 12.

OUTSTANDING STATION ENGINEERING is evident throughout this issue. For instance, the WGAR-KMPC article is one of the best engineering stories we've had, about a couple of the finest installations we know of, by one of the best engineering groups in the industry. Everything about the operation of the Richards stations—WGAR-WJR-KMPC—impresses us—the promotion, the planning, and most of all, the progress (three fifty kilowatters today, where ten years ago they had one). The progress, incidentally, was greatly contributed to by their brilliant engineering staff. And the best part of it is that this has been recognized. Morrie Pierce, a Vice President of WGAR and KMPC, takes an active part in management policy-making. Frank Leydorf, Chief Engineer of WJR, has been made a Vice President of WJR since the story on Pg. 52 went to press. Lloyd Sigmund, Chief Engineer of KMPC, and Sid Fox, Installation Supervisor, have also received a large share of the credit. Recognition such as this has, until recently, been rare. However, within the last few years quite a number of the larger stations have given official recognition—and appropriate pecuniary reward to their engineering supervisors. About time, say we! With television moving on stage, many stations will be spending large sums on equipment and plant. A good engineer can avoid mistakes which will save his salary many times over. We believe in more recognition (verbal and folding) for the engineer—and we're going to plug for it at every opportunity. We've always tried to give the engineer the glory in BROADCAST NEWS articles—and from now on that goes double.

KCMO's new fifty kilowatter is another installation we're real proud of. While probably not the fanciest layout in the country, it certainly is one of the best from an engineering and performance viewpoint. Karl Troeglen, KCMO's Technical Director, started this job—and substantially completed it—during the days of acute shortages. In order to get it done in a reasonable time he had to plan carefully. Even so it required ingenuity to complete it on time. That Karl was able to do it is a tribute to his resourcefulness and to his 20 years of experience in this field. Much of this experience was gained as technical director of the Capper stations during the ten year period before the war. During the war Karl supervised Navy Radar installations. Immediately after V-J Day he took over the planning of the new KCMO. To see how good a job he did one need only study the KCMO floor plan (Pg. 20).

250 BETWEEN 2 stirred up a lot of interest. Answers to the number of nearly a hundred came in by mail, wire, TWX, and even long-distance phone.

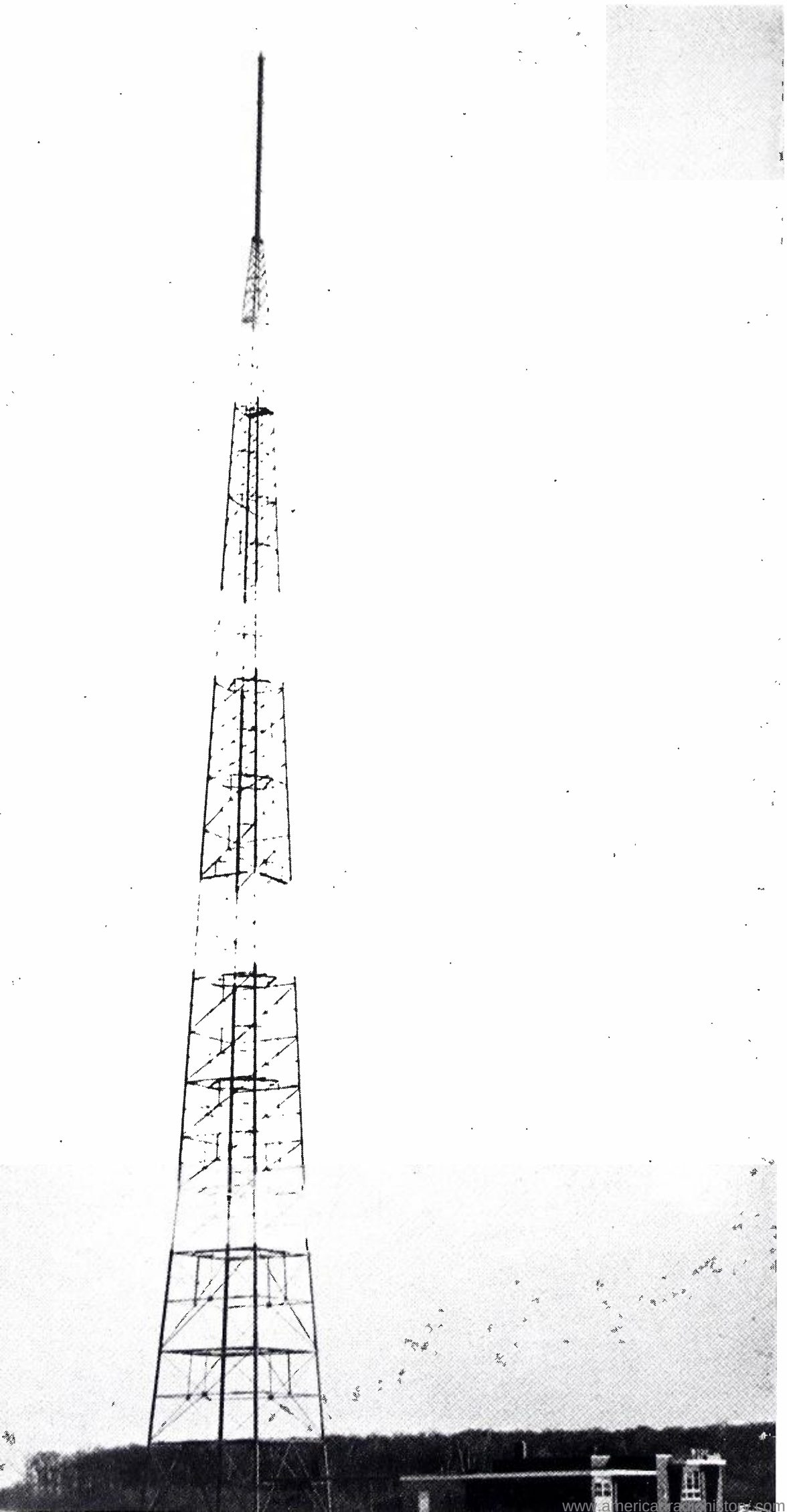
Three of the answer-writers correctly guessed that the reference was to our new Broadcast Equipment Catalog—250 pages of detailed information between two covers. (Corny, isn't it—but aren't we all). Because we couldn't figure for sure who was first we are giving all three a personal radio. The winners are: J. E. Hitt, Chief Engineer, KBTM, Jonesboro, Ark.; John Dubuque, Chief Engineer, KXA, Seattle, Wash.; Roy A. Olerud, Chief Engineer, WGYN-FM, New York, N. Y. The rest of you so-lucky-people will receive—you guessed it—a beautiful brand new copy of same catalog.

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WJPG-FM

First FM Service in North East Wisconsin Area

by ELMO W. REED
Chief Engineer
Radio Station WJPG and WJPG-FM



Since August 13, 1947, WJPG-FM (a radio service of the Green Bay Press Gazette) has been providing northeastern Wisconsin listeners with their sole source of FM broadcast programs. When WJPG's 3 kilowatt FM station went on the air (channel 266, frequency 101.1 mc) in August, we culminated two years of planning and construction from the time that an application was filed with the commission. The one-kilowatt AM transmitter, RCA Type BTA-1L (AM station photos are not available as this is written) was installed during the late fall. The AM transmitter and building are located in the same general area as that of the FM building and tower, except at a lower elevation.

NEW STUDIO BUILDING AND EQUIPMENT UNDERWAY

In a sense, WJPG-FM, which has been programming eight hours daily, is in a temporary period of operation. The small studio we now use, located at 428 Cherry Street behind the Press-Gazette building, will be a far cry from the studios under construction. The completely new building and studios equipped with poly-cylindrical diffusers will contain four main studios, two control rooms and a talent-observation lounge. These facilities will fulfill both AM and FM requirements. Six racks of custom-built speech input equipment and two specially-built studio control consoles are being furnished by RCA. We believe it will be one of the finest small-city station studios in the country. Meanwhile, WJPG-FM will continue to produce local studio shows from the temporary quarters and pipe programs via telephone lines to the FM transmitter, 10 miles distant.

FM TRANSMITTER EQUIPMENT AND BUILDING

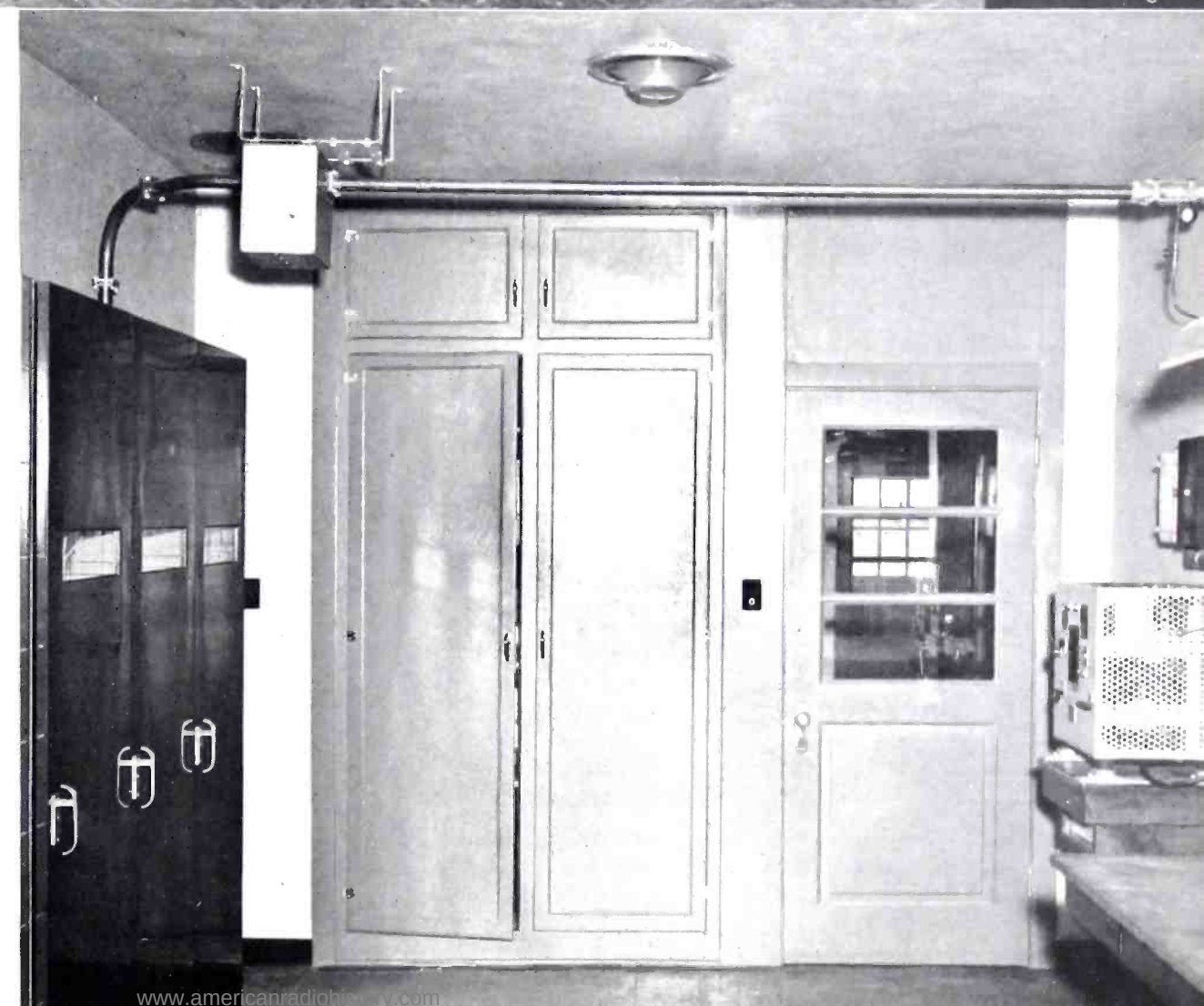
Situated on Scray's Hill, about 10 miles southeast of Green Bay, is our brick-constructed transmitter building, which is shown in Figure 1. It houses the flush-mounted 3 KW FM transmitter, the control console, and monitoring and audio equipment (see Figures 2 and 3). The two RCA speech input racks contain the limit amplifier jack panel, monitor

FIG. 1. (left) *This view shows WJPG-FM's 325-foot tower with its four-section RCA Pylon mounted on top. The location on Scray's Hill provides the Pylon Antenna with a height of nearly 500 feet above average terrain. WJPG's brick transmitter building is shown in the foreground.*

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FIG. 2. (above) *A partial view of the transmitter room. Visible are—the 3 KW RCA FM transmitter (flush-mounted to provide a neat arrangement in which all controls are easily accessible)—the speech input equipment rack and control console. On the left panel of the console are the tower light burnout indicators, and on the right panel, the vu meter with its attenuator switch, monitor selector switch, monitor volume control, master gain control and three input circuits consisting of line, mike and turntable.*

FIG. 3. (right) *Plenty of walk-around and working space was provided behind the 3 KW FM transmitter. All three cabinets of the FM transmitter have full-width front and rear doors for easy access to tubes and components. Also visible in this view are the harmonic filter, tower beacon flasher, photo-electric control box for the tower lights, and the transmission line dehydrator unit.*



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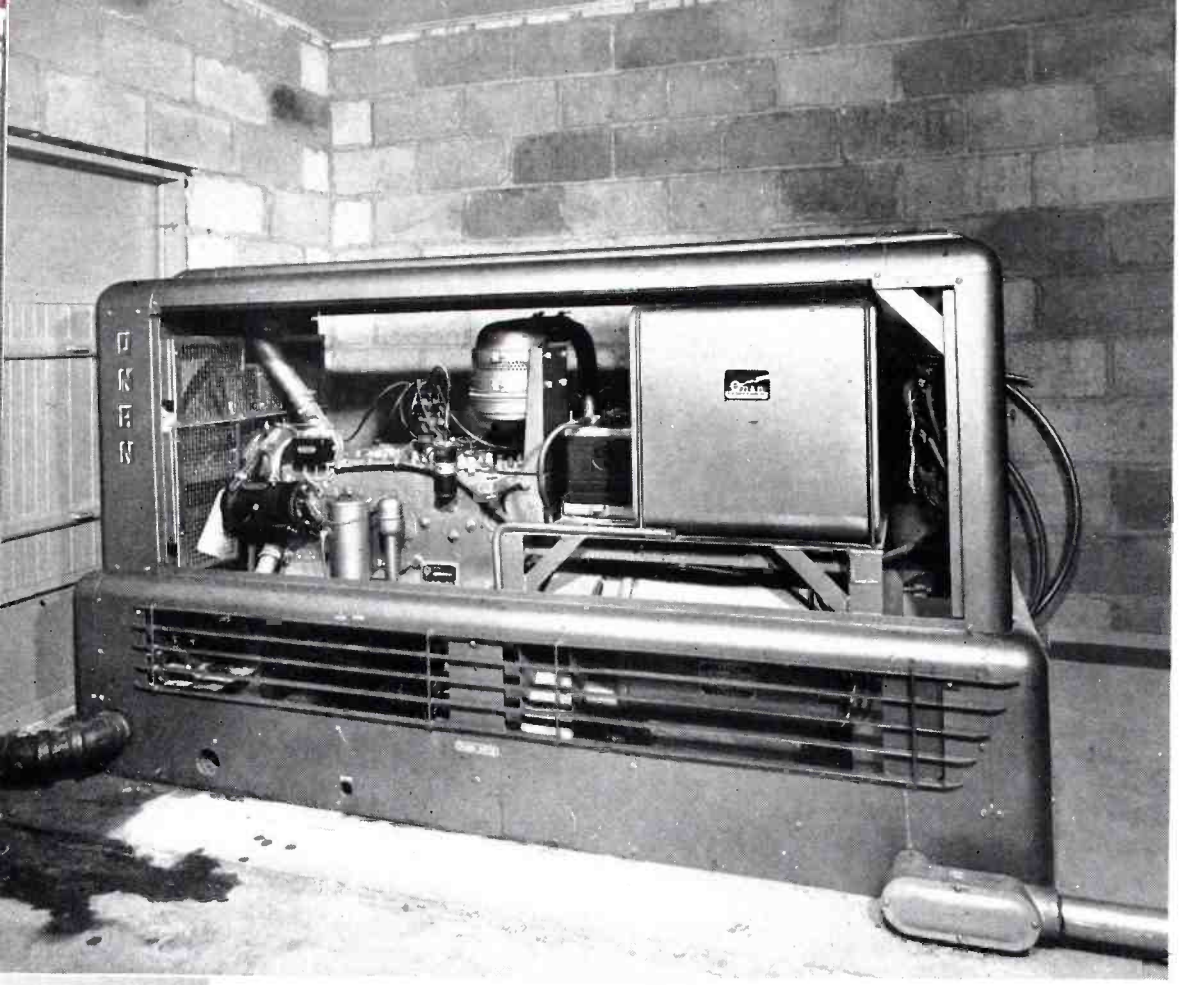


FIG. 4. (above) *The standby power plant located in the WJPG-FM transmitter house consists of a six-cylinder gasoline driven Onan motor which develops 35,000 watts. It is equipped with undervoltage relays which automatically start the generator and switch the load from the power line to the generator in the event of transmission line failure.*

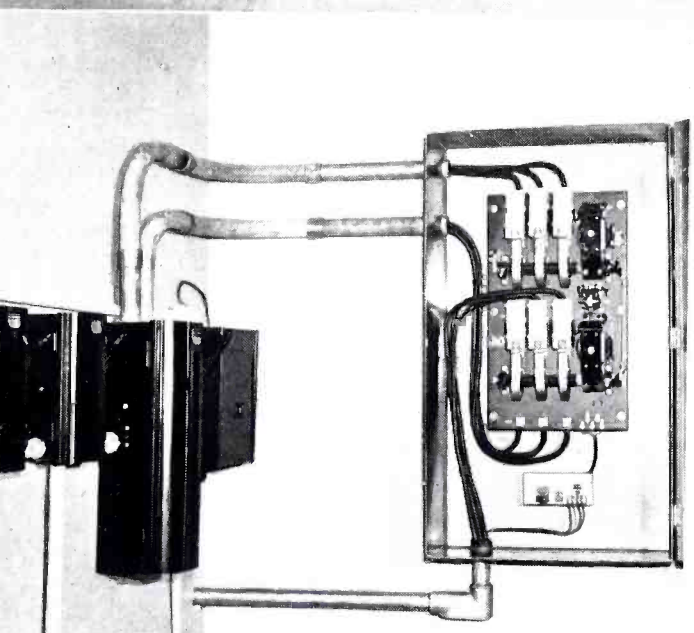
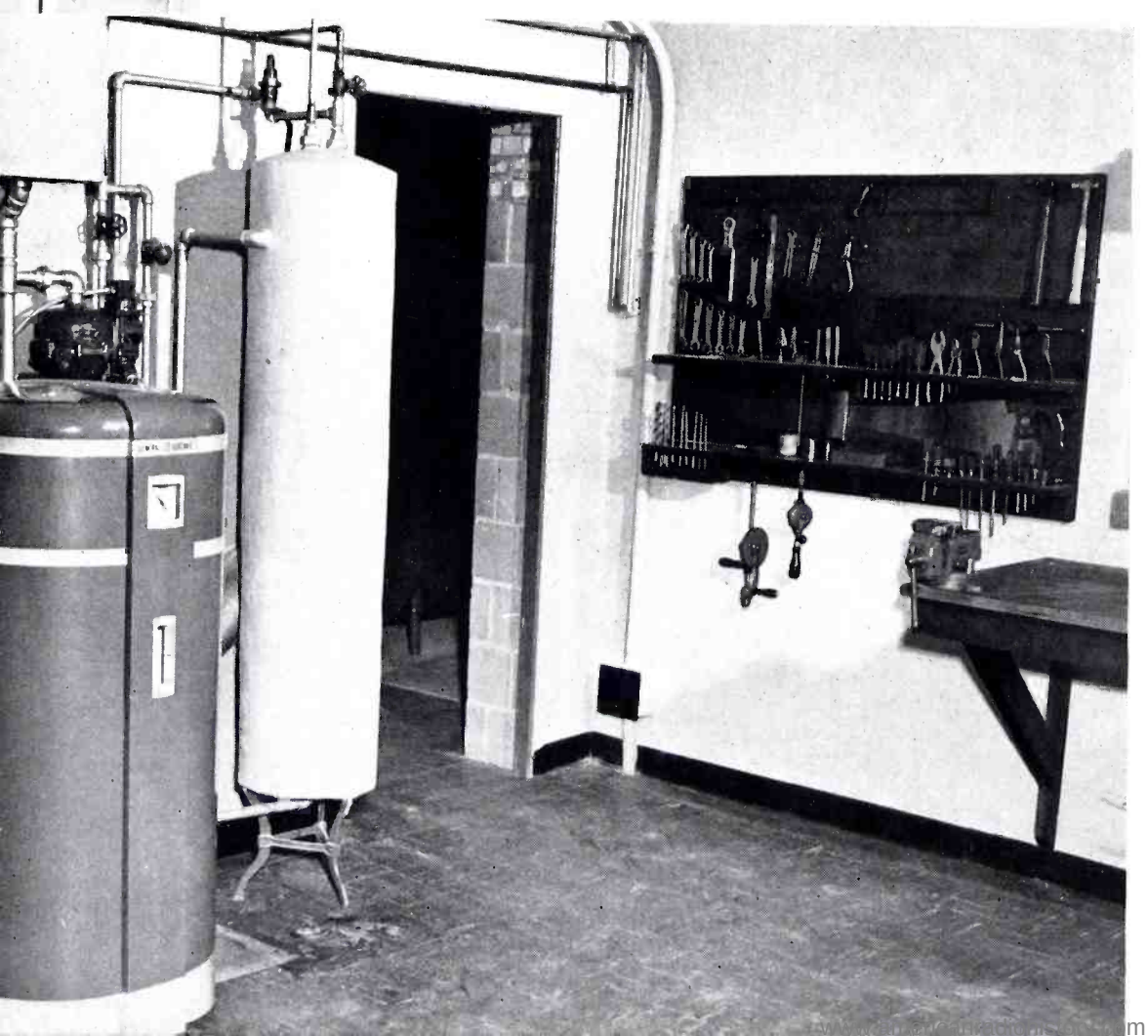


FIG. 5. (left) *The various power switches in the WJPG-FM building are located as shown here. From left to right are the telephone termination cabinets and the power changeover switch for the Onan standby power plant.*



amplifier, a-c switches and the frequency and modulation monitors. The control console, which is a composite affair made by bolting two RCA public address consoles together, is located so that the operator has easy access to all controls required for normal transmitter operation. In addition to the transmitter and its associated equipment—a combined utility room and workshop, and a 35,000-watt standby power plant are located in the same building (see Figures 4, 5 and 6).

RCA broadcast equipment was specified almost entirely and the high quality of reception, to which listeners in this area attest, is a compliment to that equipment. WJPG-FM's transmitter is a 3 kilowatt, RCA Type BTF-3B. The transmitter output is fed through a coaxial transmission line to the four-section RCA Pylon, which is mounted atop the 325-foot Blaw-Knox tower (see Figure 1).

THE PYLON ANTENNA

The 54-foot RCA Pylon Antenna, due to its design, steps up the 3 KW power output to an effective radiated power (transmission line loss subtracted) of 14.4 kilowatts, which has proved to be more than adequate to cover the prosperous Green Bay area. WJPG-FM is provided with a minimum coverage of 60 miles in radius with a signal strength of 50 microvolts.

The antenna tower is located just to the right and immediately behind the transmitter building on Scray's Hill. The "Hill" has an interesting geological background. It is a part of what local people know as "the ledge"—which is a young limestone formation underlying this part of the United States. Its most famous outcropping is at Niagara Falls. The height of Scray's Hill, plus the 325-foot tower, give the RCA Pylon Antenna a total height of about 500 feet above average terrain.

The entire installation of antenna and tower proceeded smoothly. The four-section Pylon antenna was *raised and mounted to the tower top as one completely-assembled unit.* As may be seen in Figure 7, all four Pylon sections (each section is 13½ feet long and 19½ inches in diameter) were bolted together at the flanges, antenna beacon attached, and transmission line harness inserted—while "on the ground". The only connection required in the air was in coupling to the transmission line from the transmitter. Throughout the entire Pylon installation, the construction crew used only standard equipment, such as the motor-driven winch, necessary cables, tag lines and gin pole. A series of views (Figures 7 to 10) is included here to illustrate the antenna installation, as it progressed.

FIG. 6. (left) *The combined utility room and workshop in the WJPG-FM transmitter building includes a GE oil burner and hot water tank, and tool racks, as shown. The room was designed to give ample space around the work bench.*

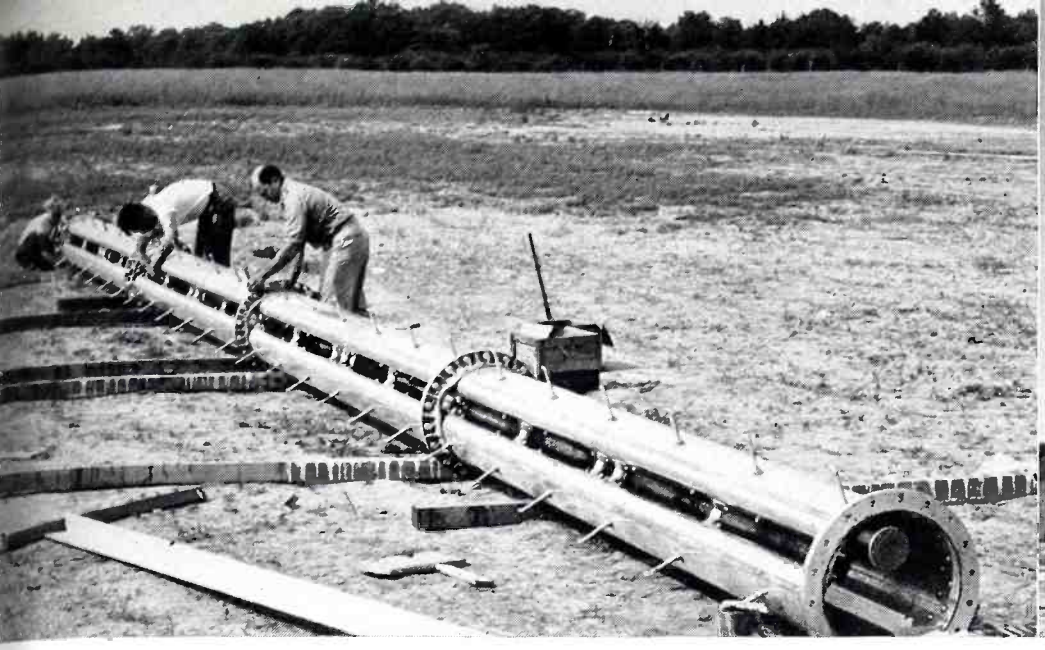


FIG. 7. (above) *All Pylon assembly work was done on the ground. The four sections were bolted together at the flanges, and transmission line harness was inserted prior to erection.*

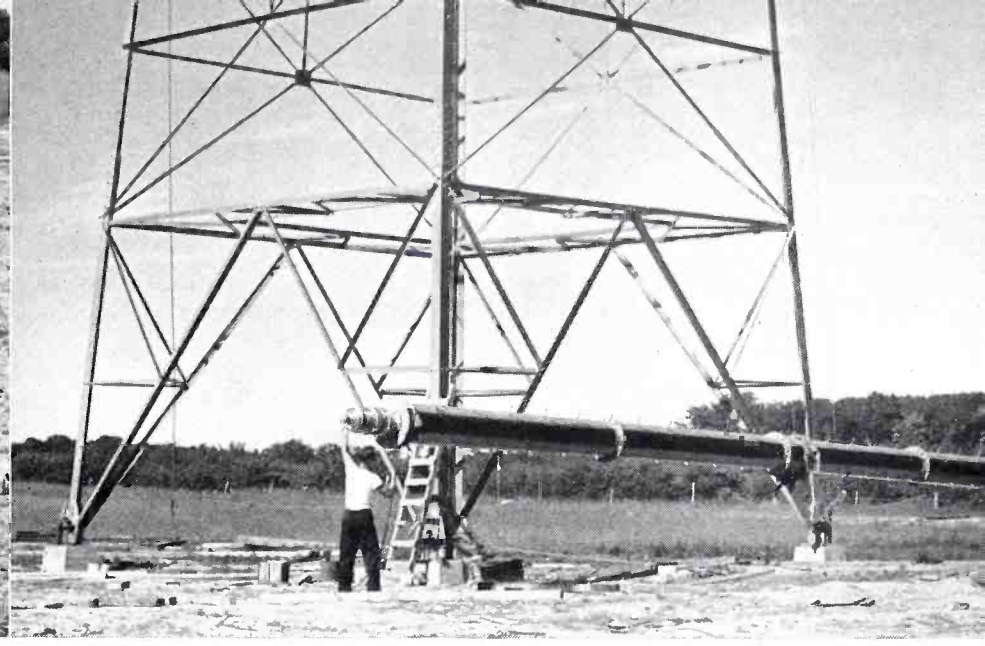
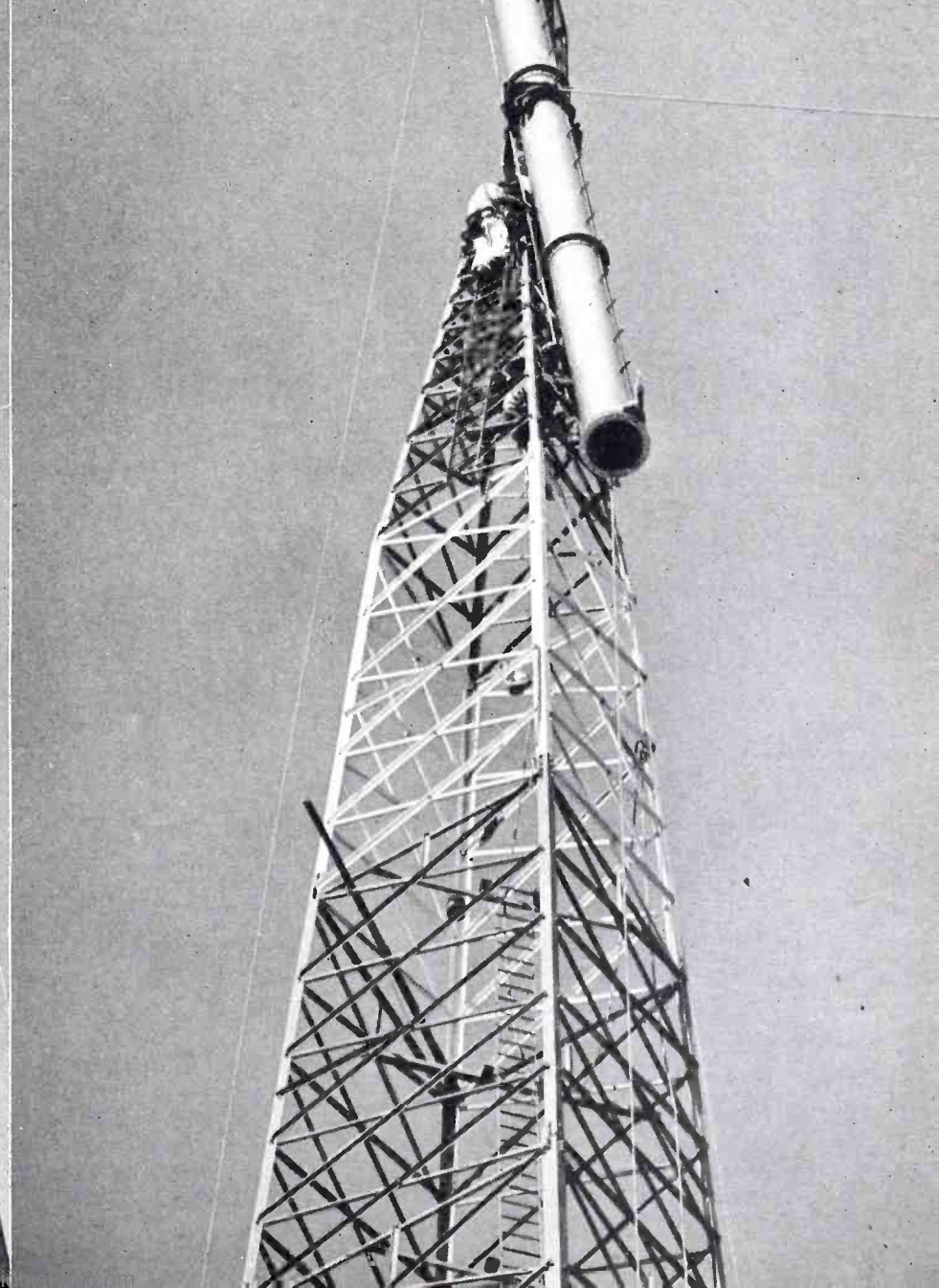


FIG. 8. (above) *Completely assembled (with polyethelene sheets covering the full length slots and with beacon attached) the Pylon is ready to start its way up the tower.*

FIG. 9 (below) *This view shows how the four-section Pylon is carefully guided up the tower with the aid of ginpole, motor-driven winch and necessary tag lines.*



FIG. 10. (below) *With the Pylon nearly raised to full tower height, riggers are getting ready to mount the antenna atop the 325-foot structure.*



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